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Vilma I. Fernandez

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

SERIAL NO.	09/641,014
APPLICANT	Wenninger et al.
FILED	August 17, 2000
EXAMINER	T. Ribar
ART UNIT	1711
FOR	Adhesive packaging tape with natural-rubber hot-melt pressure sensitive adhesive

Hon. Commissioner of Patents
Washington, D.C. 20231

March 21, 2003

APPEAL BRIEF UNDER 37 C.F.R. § 1.192

1. **Real Party in Interest**

The real party in interest is tesa AG, Quickbornstrasse 24, D-20253, Hamburg, Germany.

2. **Related Appeals and Interferences**

Applicant is unaware of any related appeals or interferences.

3. Status of the Claims

Claims 1, 2, 4-9, 13 and 14 are pending in the application, and all stand rejected. The rejections of are appealed herein.

4. Status of Amendments

A Final Action was mailed on July 22, 2002, rejecting claims 1, 2, 4-9, 13 and 14. A Notice of Appeal was filed on January 21, 2003.

5. Summary of the Invention

The claims are directed toward an adhesive packaging tape comprising a backing and a pressure-sensitive adhesive. The method of preparing the adhesive component is novel in the art, and contributes to the adhesive tape's properties. Specifically, the Applicants' use of a solvent-free method of preparing the adhesive component of the tape provides an adhesive that (i) is thermally cross-linkable; (ii) retains excellent adhesive properties (see *infra*, § 8(C)(4)), and (iii) is more economical and time-efficient because it requires neither ultraviolet irradiation or electron beam irradiation for crosslinking, nor the time-consuming solvent-drying steps that would also require drying ovens.

Briefly, the backing comprises an oriented thermoplastic film. The pressure-sensitive adhesive is a non-thermoplastic elastomer composition based on natural rubber elastomers that is prepared by a solvent-free process. As a result of this technology, the natural rubber-based adhesive composition possesses a novel and unobvious property when compared with other natural rubber-based adhesives – i.e.,, that curing the adhesive is accomplished thermally by including in the composition a thermally labile cross-linking component.

As will be demonstrated in the forthcoming discussion, the claimed adhesive tape based on this adhesive composition has not been taught or suggested in the art. Accordingly, the rejections of claims 1, 2, 4-9, 13 and 14 under 35 U.S.C. § 103(a) should be reversed.

6. Issues

The issues to be resolved are:

(i) whether claims 1, 2, 4-6, 8-9, 13 and 14 are patentable under 35 U.S.C. § 103(a) over U.S. 6, 258, 426 to Yamamoto et al., ("Yamamoto") in view of U.S. 5, 866, 249 to Yarusso, et al., ("Yarusso");

(ii) whether claim 7 is patentable under 35 U.S.C. § 103(a) over Yamamato, or U.S. 6, 022,907 to Ikeda et al., ("Ikeda"), in view of U.S. 6,127, 032 to Kelch et al., ("Kelch"); and

(iii) whether claim 7 is patentable under 35 U.S.C. § 103(a) over Yamamoto and Yarusso as applied to claim 1, and further in view of Kelch.

7. Grouping of Claims

Claims 1, 2, 4-6, 8-9, 13 and 14 stand or fall together. Claim 7 stands alone.

8. Argument

A. Problem Facing Persons of Ordinary Skill in the Art

The invention is directed toward an adhesive packaging tape comprising a natural rubber hot-melt pressure sensitive adhesive that is prepared by solvent-free technology. Specification, page 1, 1st paragraph. In addition to the advantages of solvent-free technology itself, the claimed adhesive tape comprises an adhesive with demonstrably improved properties when compared to those in the art.

It is well-known in the art to prepare adhesive tapes based on solvent-containing adhesive compositions. *Id.*, 2nd paragraph. With respect to the manufacturing facilities and its surroundings, the use of organic solvents presents various hazards; e.g., the escape of solvents into the environment, complex recycling procedures, and workplace hazards based on the solvents' flammability. Therefore, solvent-based technology presents several undesirable environmental problems that, *inter alia*, also increase the cost of production. Specification, *see* generally, page 1.

From the standpoint of industrial efficiency, solvent-based technologies also require allotments of time for drying of the adhesive. This slows the overall process resulting in slower tape production, i.e., less backings being coated per unit time. *Id.*

As a result of these drawbacks solvent-free technologies have become increasingly important. However, solvent-free technologies have been limited to producing adhesive compositions based on thermoplastic elastomers. Such methodology successfully alleviates some of the solvent-related problems discussed above. However, this methodology yields adhesive compositions having several undesirable properties relevant to the adhesive tape's functioning. *Id.*

For example, at elevated temperatures, packaging tapes based on thermoplastic elastomers show poor thermal stability and age-related deterioration of the tape's properties. For example, persons of ordinary skill in the art have come to expect that such tapes demonstrate premature unsealing of the packaged carton, box, etc. Specification, page 2. Significantly, this problem can be traced to the nature of solvent-free compounding as practiced in the art at the filing date of this application.

The solvent-free processes known in the art are plagued by degradative and chain-altering side-effects that deleteriously effect polymer structure and function. Specification, page 3, lines 23-29. These effects include, *inter alia*, chemical-, thermal- and/or mechanical-induced cleavage of polymer chains yielding reactive macroradicals; oxidation of functional side groups, which lead to aberrant crosslinking and polymerization. Although some additives, e.g., antioxidants and/or inert gases, may alleviate a portion of the aforementioned unregulated polymer degradation, a considerable amount continues unchecked. Specification, page 3, lines 30-31.

From a manufacturing perspective, the uncontrolled decrease in polymer length caused by degradation requires compensatory levels of crosslinking in order to offset the decrease in average molecular weight of the polymer chains. However, at the excessively high temperatures required and/or generated by the solvent-free processes known in the art, attempting to thermally-induce crosslinking by the addition of a thermally labile appropriate crosslinking system is not feasible. Attempting to thermally crosslink at these elevated temperatures yields a mass of

polymer that is so excessively viscous and difficult to handle that it becomes overly burdensome to attempt coating of the tape backing material. Specification, page 5, lines 18-24. These drawbacks are especially evident when preparing adhesives based on natural rubber. Specification, page 14, line 20 to page 15, line 20.

The advantages of natural rubber as an adhesive component are governed by the high molecular weight of natural rubber's elastomers, as well as their degree of unsaturation. However, these same polymer characteristics are also at the root of the problems associated with known solvent-free methods for preparing adhesives. *Id.* This because natural rubber's high molecular weight polymers are very susceptible to mechanical cleavage into lower molecular weight chains at elevated temperature. Further, natural rubber's unsaturated polymer chains are susceptible to thermo-oxidative splitting. *Id.* Thus, useful adhesive tapes comprising adhesives based on natural rubber are to date, prepared only by solvent-based technology.

For this reason, known adhesives prepared by known solvent-free methods, and solvent-based methods, e.g., mastication, usually coat the tape's backing with uncrosslinked adhesive, and then bombard the tape with ultra-violet irradiation (UV) or electron-beam irradiation (EBC) to crosslink the adhesive. This complex and time-consuming step would be unnecessary, if after compounding but prior to the coating step it were feasible to thermally induce crosslinking while still in a batch.

Applicants have accomplished this by developing a method that significantly decreases polymer degradation, and allows thermal crosslinking of the compounded adhesive composition followed by coating of the backing. A key element in developing Applicants' method of producing the claimed adhesive tape was to discover a way to perform solvent-free compounding that did not expose the adhesive to excessively high temperatures and shear forces that degrade the polymers and preclude thermal crosslinking.

As a by-product of Applicants' methodology, they have produced natural rubber-based adhesive compositions having improved properties. These adhesives contribute significantly to the patentability of the adhesive tapes described in the claims under appeal.

B. Solution Provided by the Invention

Applicants' solution to the problems described above is embodied in the adhesive tape described in the appealed claims. Specifically, the claims are directed toward adhesive tapes based on a thermally crosslinked adhesive comprising polymers of natural rubber.

A key aspect to the Applicants' method is the use of a planetary roll extruder to prepare the adhesive. An important advantage of this apparatus is that it does not produce the shear forces of other types of compounding apparatuses that degrade the elastomers to lower molecular weight polymers. Specification, page 21, lines 15 *et seq.*

In addition, the planetary roll extruder is designed to allow improved temperature regulation of the compounding cylinders, thus, (1) avoiding thermo-oxidative degradation of the polymer chains, and (2) maintaining temperatures compatible with thermal crosslinking. *Id.* at lines 11-14.

As described below in detail, the result is an improved adhesive tape having properties that clearly distinguish it from tapes known in the art that comprise natural rubber based adhesives.

C. The State of the Prior Art

1. Yamamoto and Yarusso, Individually or in Combination do not Teach or Suggest Every Claim Limitation.

Claims 1, 2, 4-9, and 13-14 were held rejected under 35 U.S.C. § 103(a) over Yamamoto in view of Yarusso. The rejection was set out in detail in the non-final office action of December 13, 2001. It is Applicants position that neither reference teaches or suggests the desirability of an adhesive composition that is thermally crosslinked, as required by claim 1. It follows that this combination of references also cannot teach this limitation. Accordingly, the rejection should be reversed.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All

words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970) (Emphasis added). *See also*, MPEP § 2143.01.

Claim 1 expressly requires that the claimed adhesive tape comprise an adhesive composition having a thermally inducible crosslinking system. Neither Yamamoto nor Yarusso disclose the use of such a cross-linking system, nor do they even disclose the desirability of such cross-linking systems.

Examiner asserts on page 5, 1st paragraph of the non-final action that Yamamoto shows that the adhesive "may take place either by heat or through the use of UV radiation." Examiner cites Yamamoto, col. 7, lines 25-33. This passage was stated as part of an anticipation rejection that was subsequently withdrawn.

Applicants' position is that this is not an accurate view of Yamamoto's disclosure, and does not take into consideration the technical problems that Applicants have overcome. This citation should not reasonably be viewed as teaching or suggesting thermal crosslinking for the following reasons:

1. Yamamoto discloses a clear preference for UV crosslinking throughout his specification. Persons of ordinary skill in the art could not reasonably extract any other desirable means for crosslinking an adhesive than by UV crosslinking.

2. Even within the cited paragraph, Yamamoto never indicates that thermal crosslinking is preferred or even desirable. In fact, Yamamoto merely discloses *parenthetically*, that the adhesive coated on the backing may be crosslinked by heating *if necessary*. This parenthetical statement would appear to persons of ordinary skill as more of a *warning* against thermal crosslinking than as an art-recognized teaching or suggestion. As such, Applicants respectfully suggest that this cannot provide sufficient disclosure of thermal crosslinking to teach or suggest the relevant limitation in claim 1.

3. In addition, the crosslinking by *heating if necessary* is disclosed in the context of *drying* the adhesive – i.e., evaporating the solvents. Yamamoto never discloses thermal crosslinking as the primary means of crosslinking the coated adhesive. Therefore, according to Yamamoto, thermal crosslinking *if necessary* would not be required or desirable when *it is not necessary* to evaporate solvents from the adhesive component; i.e., *no thermal crosslinking when the adhesive is prepared by solvent-free methods*.

Therefore, Yamamoto's disclosure teaches away from the claimed adhesive tape because it would discourage persons of ordinary skill from thermally crosslinking adhesives when employing solvent-free technology. "A reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant." *In re* Gurley, 31 USPQ2d 1130 (Fed. Cir. 1994). This is strong evidence that citing Yamamoto individually or in combination with Yarusso, cannot reasonably constitute a *prima facie case* of obviousness.

Therefore, in accordance with established case law and Patent Office guidelines the combination of Yamamoto and Yarusso cannot render the claims obvious.

In view of these observations, Applicants respectfully request reversal of all claim rejections under 35 U.S.C. § 103(a).

2. Both Yamamoto And Yarusso Teach Away From The Claimed Subject Matter

Yamamoto teaches an adhesive sheet that requires a UV curing adhesive composition. See e.g., abstract; col. 2, line 59 to col. 3, line 2; claims. Yarusso discloses an adhesive based on partially oriented and partially crystallized elastomers that are crosslinked by either UV or electron beam irradiation. In describing the method of preparing the adhesive, Yarusso states:

> The PSA-coated web 38 may be wound up and slit or otherwise cut to the desired size or configuration. As shown in FIG. 1 it may first be conveyed to a crosslinking station 39 where the PSA layer on the web is exposed to radiation from a radiation source 41. Radiation source 41 may be an electron beam (e.g., an Electrocurtain.TM. unit) or ultraviolet radiation. Radiation provides crosslinking of the elastomer component of the PSA and produces a cross-inked PSA-coated web 42 which may be wound up and cut to size.

See Yarusso, col. 5, line 64 to col. 6, line 12. In other words, the backing is coated with adhesive and then irradiated. This is a clear example of the methodology that Applicants' have deemed problematic in the art, and have overcome with the claimed adhesive tape. See § 8A, *supra*.

Taken together or individually, neither Yamamoto nor Yarusso teach or suggest thermal crosslinking.

In fact, Yarusso expressly cautions against thermal crosslinking. Yarusso emphasizes that when crosslinking his adhesive it is desirable to maintain the oriented/crystalline nature of the adhesive composition.

In the context of expressly suggesting that crosslinking of the adhesive is desirable, Yarusso expressly states, "[h]owever, crosslinking processes *which involve heating may be detrimental* to preserving the orientation and crystallinity in the PSA." Col. 4, lines 25-33. In addition, Yarusso cautions that "heating the PSA tape *could detrimentally affect its anisotropic characteristics.*" Col. 8, lines 35-39. Thus, high temperatures are to be avoided, e.g., drying off solvent in an oven as well as thermal crosslinking.

"A reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant." *In re* Gurley, 31 USPQ2d 1130 (Fed. Cir. 1994). In other words, if a reference would have discouraged persons of ordinary skill from taking a particular research path, then the reference teaches away from that particular path's results.

It is clear that Yarusso's teaching away from thermal crosslinking would have discouraged one from combining Yarusso with any reference, let alone with Yamamoto who also expressly favors irradiation crosslinking. In fact, Yamamoto also expresses a clear preference for UV and photo- polymerization crosslinking methods and, indicates parenthetically, that in addition to UV

curing, a drying step may be included "if necessary, with crosslinking by heating." Yamamoto, col. 7, lines 25-32.

In assessing what is fairly taught or suggested by the references, Yarusso's express caution against thermal crosslinking could not reasonably be viewed as suggesting such methodology. This reasoning also applies to Yamamoto's caution against thermal crosslinking. These teachings would clearly discourage one in the art from arriving at the appeals claims' limitation encompassing thermally crosslinked adhesives for use in adhesive tapes.

As a last point in this context, if the Board should agree with Examiner that Yamamoto's disclosure (col. 7, lines 25-33) provides a suggestion for thermal crosslinking, Applicants point out that such an interpretation would necessarily render Yamamoto and Yarusso as teaching away from each other with respect to thermal crosslinking.

It is long settled that it is improper to combine references where the references teach away from their combination. *In re Grasselli*, 218 USPQ 769, 779 (Fed. Cir. 1983). The rationale for this is that it indicates that "the inventor achieved the claimed invention by doing what those skilled in the art suggested should not be done," and accordingly, this "is a fact strongly probative of nonobviousness." Kloster Speedsteel AB v. Crucible Inc., 230 USPQ 81 (Fed. Cir.1986).

In view of these references and the foregoing remarks, the rejections should be reversed.

3. Examiner Has Not Considered the Claimed Invention "As a Whole"

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); MPEP § 2142.02.

It is respectfully suggested that Examiner has not considered the claimed adhesive tape as a whole as required. Instead, it appears that the analysis seems to be based on viewing the adhesive tape as an interchangeable set of claim limitations some of which (but not all) can be

found in Yamamoto and Yarusso. For this reason, Examiner has, in our view, not considered the advantages conferred to the claimed adhesive tape by the Applicants' methods.

The problem in the art was how to improve the production of adhesive tapes based on natural rubber elastomers. Although one may at first believe that such an inquiry is more relevant in analyzing the patentability of claims directed to the methods that solve the problem, this is not necessarily true, and is not the case here.

For example, unlike the adhesive component of Applicants' adhesive tape, Yarusso's oriented/crystalline elastomer adhesive would be structurally and functionally compromised if the oriented/crystalline elastomer composition be subjected to thermal crosslinking. Thus, the properties of the adhesive tapes are significantly affected by the different methodology of preparing the adhesive components of the tapes. Thus, the actual solving of the problems disclosed in the methodology was directly translated into improved functional properties of the claimed adhesive tape.

4. <u>The Claimed Adhesive Tape Demonstrates Distinct Properties When Compared With Yamamoto's Tape</u>

The differences in physical properties between Yamamoto's tape and the claimed tape support the conclusion that Applicants' adhesive tape is distinct and patentable over the available prior art.

Yamamoto's adhesive tape shows a dramatic <u>decrease</u> in bond strength after UV curing. See Table 2. After UV curing, Yamamoto's tapes decrease in adhesive force strength from 400 g/25mm to 8 g/25mm – a decrease of 92%. This is very likely due to the fact that Yamamoto's tapes are meant to be strong enough to adhere to a delicate semiconductor wafer, but also, to have low enough adhesion to easily release the wafer without injuring it. In other words, strong bonding is not the primary goal of Yamamoto.

In contrast, the claimed tape has been developed as a packaging tape and has different properties than Yamamoto's. For example, in stark contrast to Yamamoto's tape, crosslinking of the adhesive used in the claimed adhesive tape does not result in the loss of any bond strength.

See, page 35 of the specification, Formulation A (thermal crosslink/diisocyanate) with Formulation B (not crosslinked).

In order to directly compare the approximate values of the adhesive force between the adhesive tapes and a test substrate, we must convert Yamamoto's values to the same units as Applicants. Both adhesive strength tests were based on peeling the tapes from a substrate. When Yamamoto's values are converted from *g/25mm* to *N/cm*, we find that Applicants' tape bonds almost ten times greater than Yamamoto's. Conversion factors used where; 25mm=2.5cm, and 1Newton (N) force = 101.9 grams-force, or 1 gr force = .0098 N.

Applicants' bond strength is about 3 N/cm, while UV curing resulted in Yamamoto's tape having an adhesive force of about 0.039 N/cm (based on a value of 10 g/25mm).

There is no disclosure in either Yamamoto and/or Yarusso that provides to persons of ordinary skill in the art a reasonable expectation of success in obtaining an adhesive tape with a thermally crosslinked adhesive and having an approximately 10-fold increase in adhesive force over Yamamoto. Therefore, the combination of Yamamoto and Yarusso cannot constitute a prima facie case of obviousness. MPEP § 2142.

Examiner has not provided any reasoning or objective evidence to indicate that by combining Yamamoto with Yarusso's disclosure, a better or more suitable packaging adhesive tape would have been suggested. In other words, there is no evidence of any sort to establish that Yarusso can cure the deficiencies in Yamamoto.

For this reason, the Examiner did not carry his burden of establishing *prima facie* obviousness. Accordingly, the rejections under § 103(a) should be reversed.

5. <u>Claim 7 is not Rendered Obvious by the References</u>

(i) Claim 7 was rejected under 35 U.S.C. § 103(a) over the combined disclosures of Yamamoto or Ikeda, in view of Kelch. See § 6(ii). The thrust of this rejection is that Kelch

allegedly discloses the suggestion of applying a primer layer between the thermoplastic film backing and the adhesive layer.

Viewing this rejection in the context of the foregoing discussion, it is clear that this combination of references fails to provide a *prima facie* case of obviousness. Specifically, the combined references do not teach or suggest the desirability of an adhesive tape comprising natural rubber adhesives prepared by solventless technology and is thermally crosslinked.

Because the combined disclosures of these references fail to teach each claim limitation, they are insufficient to render claim 7 obvious. Accordingly, this rejection should be withdrawn.

In addition, there would be no motivation to combine the teachings of Yamamoto or Ikeda with those of Kelch. This is because Kelch discloses "an adhesion enhancing primer or bonding layer" to enhance the bonding of adhesive labels to glass substrates, e.g., bottles. See col. 3, lines 19-25, and Abstract. There is no suggestion in any combination of references that such primer layers are necessary or even desirable, in adhesive tapes.

It is likely that Kelch adds this primer layer to enhance the label's bonding to smooth surfaces, such as glass. See Abstract, and Summary of Invention. Persons with skill in the art would not be motivated to combine Kelch's teachings and disclosure with Yamamoto or Ikeda in order to arrive at the claimed adhesive packaging tape.

The fact that Kelch's labels are specifically directed for use on glass is especially significant in view of the fact that the two references that actually disclose adhesive tapes, *do not disclose the use of a primer layer*. Thus, persons of ordinary skill would not conclude from the closer prior art disclosures of Yamamoto, Yarusso and Ikeda, that a primer layer was necessary or even desirable in an adhesive tape. Further, if including a primer layer in an adhesive tape was, indeed, well known in the art as stated by Examiner (Office Action, 12/13/2001, page 9), a closer reference would have been found and applied, rather than Kelch.

Respectfully, it appears that Kelch is cited to facilitate the hindsight reconstruction of claim 7 from the references. Examiner has extracted from Kelch whatever claim elements are missing

from Yamamoto or Ikeda, without considering whether motivation to do so would be reasonable to those in the art. This mode of analysis is strictly against MPEP guidelines and provides an improper basis for maintaining a rejection. e.g., MPEP § 2141.01(III). In performing this analysis, Examiner also does not consider the references and the claimed invention in their entireties, i.e., each "as a whole," as required, but only as sources of claim elements for reconstructing claim 7. MPEP § 2142.01.

In conclusion, the teachings of Yamamoto or Ikeda do not rationally support being combined with Kelch. Applicants respectfully request that this rejection be reversed.

(ii) Claim 7 was also rejected over Yamamoto and Yarusso in view of Kelch.

The discussion in §§ 8(C)(1) to (C)(4) have overcome the combination of Yamamoto and Yarusso. Accordingly, additional rejections predicated on Yamamato and Yarusso are also overcome. On this basis alone, the rejection of claim 7 should be reversed.

Further, the absence of sufficient motivation to combine Kelch with Yamamoto or Ikeda applies equally well for combining Kelch with Yamamoto and Yarusso.

Respectfully, the rejection of claim 7 should be reversed.

9. Conclusion

Applicants solicit reversal of the rejections of the claims under 35 U.S.C. § 103(a).

Claims 1, 2, 4-6, 8-9 and 13-14 stand together, and the rejections over Yamamoto in view of Yarusso should be reversed. The combination of Yamamoto with Yarusso, have been examined been found to teach and suggest an adhesive tape with several key differences when compared with the claimed adhesive tape. These differences exist on several levels.

For example, it has been shown above that after crosslinking, Applicants' claimed adhesive tape's bonding strength are about 10-fold higher than Yamamoto's. See § 8(C)(4). This

large difference in bonding strength is sufficiently large that if a *prima facie* case of obviousness were raised by Examiner, this clear difference in bonding properties would be sufficient to rebut it.

With respect to existing technical problems in the art, Applicants have devised a novel and unobvious approach to preparing thermally crosslinked adhesive compositions based on natural rubber. Neither Yamamoto nor Yarusso use solventless methods, thus, the difference in adhesive strengths described above is likely to reflect the methods developed by Applicants.

In addition, we point out that the combination of Yamamoto and Yarusso does not teach all material claim limitations. Further, the combination of references teaches away from the claims, and individually, they teach away from each other. §8(C)2. Thus, Yamamoto and Yarusso cannot be rationally combined to maintain a *prima facie* case of obviousness. Further, if for arguments sake, their combination were proper, they still do not teach each claim limitation – i.e., thermal crosslinking system.

Claim 7 stands alone and is rejected on references combined with Yamamoto. For all the reasons set forth above, this rejection should also be reversed.

Respectfully Submitted,

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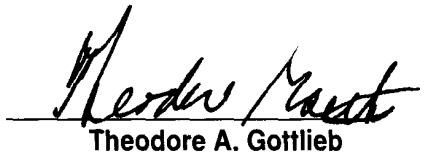

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9. Appendix – Claims On Appeal

1. (twice amended) Adhesive packaging tape comprising a backing comprising an oriented thermoplastic film and a coating comprising a solventlessly prepared pressure-sensitive adhesive composition based on non-thermoplastic elastomers wherein the pressure-sensitive adhesive composition comprises a thermally labile crosslinking system, wherein the adhesive composition comprises a mixture of:

a) 100 parts by weight of natural rubber

b) 70-120 parts by weight of tackifying resins based on hydrocarbons

c) 5-30 parts by weight of fillers

d) 2-20 parts by weight of plasticizers

e) 0.1-15 parts by weight of a crosslinker system

f) 0.5-5 parts by weight of ageing inhibitors.

2. (amended) Adhesive tape according to Claim 1, wherein the thermoplastic film comprises biaxially oriented HDPE, PVC or PET, monoaxially oriented polypropylene or biaxially oriented polypropylene.

4. (amended) Adhesive tape according to Claim 1, wherein the crosslinker system is based on isocyanates, and is used in an amount of 0.1-5.0 parts by weight.

5. (amended) Adhesive tape according to Claim 1, wherein the crosslinker system used comprises a mixture of 0.1-5 parts by weight of at least one photoinitiator, and 0.5 to 10 parts by weight of at least one polyfunctional (meth)acrylic ester.

6. (amended) Adhesive tape according to Claim 1, wherein the pressure-sensitive adhesive composition is crosslinked by means of accelerated electrons or UV radiation.

7. (amended) Adhesive tape according to Claim 1, wherein a coat of a primer is applied between the thermoplastic film and the adhesive layer.

8. (amended) Adhesive tape according to Claim 1, wherein the thermoplastic film comprises a release coating.

9. (amended) Adhesive tape according to Claim 1, wherein the adhesion of the adhesive composition to the thermoplastic film is improved by means of corona treatment or flame pretreatment.

13. The adhesive tape of Claim 1, wherein said adhesive composition comprises natural rubber and tackifying resins.

14. The adhesive tape of Claim 4, wherein said isocyanate is a diisocyanate or a polyisocyanate.

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Application Number	09/641,014
Filing Date	August 17, 2000
First Named Inventor	Wenninger et al.
Group Art Unit	1711
Examiner Name	T. Ribar
Total Number of Pages in This Submission	Attorney Docket Number: tesa 634-WCG

ENCLOSURES (*check all that apply*)

☒ Fee Transmittal Form ☐ Fee Attached	☐ Assignment Papers *(for an Application)*	☐ After Allowance Communication to Group
☐ Amendment / Response ☐ After Final	☐ Drawing(s)	☐ Appeal Communication to Board of Appeals and Interferences
☐ Affidavits/declaration(s)	☐ Licensing-related Papers	☒ Appeal Communication to Group *(Appeal Notice, Brief, Reply Brief)*
☐ Extension of Time Request	☐ Petition	☐ Proprietary Information
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FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) **$320.00**

Complete if Known	
Application Number	09/641,014
Filing Date	August 17, 2000
First Named Inventor	Wenninger et al.
Examiner Name	T. Ribar
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☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	750	2001	375	Utility filing fee	
1002	330	2002	165	Design filing	
1003	520	2003	260	Plant filing fee	
1004	750	2004	375	Reissue filing	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($)

2. EXTRA CLAIM FEES FOR UTILITY AND

	Extra Claims			Fee from below	Fee Paid
Total Claims		-20** =	0	X =	0.00
Independent Claims		- 3** =	0	X =	0.00
Multiple Dependent				=	

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	84	2201	42	Independent claims in excess of 3
1203	280	2203	140	Multiple dependent claim, if not paid
1204	84	2204	42	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) **$0.00**

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non - English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	410	2252	205	Extension for reply within second month	
1253	930	2253	465	Extension for reply within third month	
1254	1,450	2254	725	Extension for reply within fourth month	
1255	1,970	2255	985	Extension for reply within fifth month	
1401	320	2401	160	Notice of Appeal	
1402	320	2402	160	Filing a brief in support of an appeal	320.00
1403	280	2403	140	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,300	2453	650	Petition to revive - unintentional	
1501	1,300	2501	650	Utility issue fee (or reissue)	
1502	470	2502	235	Design issue fee	
1503	630	2503	315	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR § 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Statement	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	750	2809	375	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	750	2810	375	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	750	2801	375	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) **$320.00**

SUBMITTED BY				Complete *(if applicable)*	
Name *(Print/Type)*	Theodore A. Gottlieb	Registration No. *(Attorney/Agent)*	42,597	Telephone	(212) 808-0700
Signature				Date	March 21, 2003

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